

# Claims

- [c1] A portable surface cleaning apparatus comprising:
- a base module for movement along a surface;
  - a segmented handle assembly comprising an upper handle portion removably attached to a lower handle portion, said lower handle portion pivotally attached to the base module;
  - a debris recovery system comprising;
    - a recovery container associated with one of the base module and segmented handle assembly,
    - a suction nozzle associated with the base module,
    - a working air conduit extending between the recovery container and the suction nozzle; and
    - a vacuum source in fluid communication with the recovery container for generating a flow of working air from the suction nozzle through the working air conduit and through the recovery container to thereby draw debris from a surface to be cleaned through the suction nozzle and working air conduit and into the recovery container;
  - the improvement comprising;
    - said lower handle portion comprises a base section, a pivot section, and a pivot mounting, the pivot section being pivotally attached to the base section by the pivot

mounting for rotation of the pivot section about the pivot mounting so that the pivot section can be folded to a first position against the base section to place the extraction cleaner into a compact configuration, and unfolded to a second, upright position to form the handle assembly for maneuvering the extraction cleaner.

[c2] A portable surface cleaning apparatus according to claim 1 wherein the recovery container includes a porous filter bag to filter dirt and debris from the air.

[c3] A portable surface cleaning apparatus according to claim 1 and further comprising a centrifugal particle separator in which debris and dirt are removed from the working air and are passed through an outlet of the centrifugal particle separator, and wherein the recovery container is connected to the outlet to the centrifugal particle separator.

[c4] A portable surface cleaning apparatus according to claim 1 wherein the vacuum source is mounted to one of the base module and the lower handle base section and further comprising an electrical distribution system comprising an electrical switch mounted on one of the lower handle portion pivot section and the upper handle portion, and an electrical connector between the electrical switch and the vacuum source.

- [c5] A portable surface cleaning apparatus according to claim 4 wherein the electrical connector has slack to accommodate the pivoting of the lower handle portion pivot section and the lower handle base section.
- [c6] A portable surface cleaning apparatus according to claim 4 wherein the electrical connector has a separable connector mounted to the lower handle portion pivot section and the lower handle base section and the connector separates when lower handle portion pivot section rotates from the second position to the first position and the separable connector is joined when the lower handle portion pivot section is in the second position.
- [c7] A portable surface cleaning apparatus according to claim 6 wherein the separable connector is automatically joined when the lower handle portion pivot section pivots from the first position to the second position.
- [c8] A portable surface cleaning apparatus according to claim 1 and further comprising:  
a fluid dispensing system comprising;  
a fluid dispenser associated with the base module for applying cleaning fluid to a surface to be cleaned;  
a fluid supply chamber for holding a supply of cleaning fluid; and

a fluid supply conduit fluidly connected to the fluid supply chamber and to the fluid dispenser for supplying cleaning fluid to the fluid dispenser.

[c9] A portable surface cleaning apparatus according to claim 8 wherein the recovery container further comprises an air-fluid separator to remove fluids from the working air and deposit the fluids in the recovery container and an outlet opening for exhausting separated air from the recovery container.

[c10] A portable surface cleaning apparatus according to claim 1 wherein the pivot mounting is a hinge.

[c11] A method of packaging a portable surface cleaning apparatus that includes a handle pivotally mounted to a base that is adapted to move along a floor surface comprises the steps of:  
forming the upright handle with separate upper and lower portions that can be separated from each other for shipment and can be easily joined together in an aligned relationship at a destination by a customer;  
forming the lower portion of the upright handle with upper and lower sections that can be manipulated into a relatively compact relationship for shipping and can be easily configured into a less compact aligned relationship for customer use;

mounting the lower section of the handle lower portion to the base for pivotal movement with respect to the base;  
separating the upper and lower portions from each other;  
manipulating the upper and lower sections into the more compact relationship;  
placing the base with the lower section pivotally mounted thereto into a packaging container;  
placing the upper section of the lower portion of the handle into the shipping container in the more compact relationship;  
placing the upper portion of the handle into the packaging container; and  
closing the container.

[c12] A method of packaging a portable surface cleaning apparatus according to claim 11 and wherein the step of forming the lower portion of the upright handle with upper and lower sections includes hinging the lower and upper sections of the lower portion of the handle for movement between the aligned and more compact relationships.

[c13] A portable surface cleaning apparatus comprising:  
a base module for movement along a surface;  
a handle assembly pivotally attached to the base module;

a debris recovery system carried by the base module and comprising;

a recovery container carried by the base module,

a suction nozzle associated with the base module,

a working air conduit extending between the recovery container and the suction nozzle; and

a vacuum source in fluid communication with the recovery container for generating a flow of working air from the suction nozzle through the working air conduit and through the recovery container to thereby draw debris from a surface to be cleaned through the suction nozzle and working air conduit and into the recovery container; the improvement comprising;

said handle comprises a base section, a pivot section, and a pivot mounting, the pivot section being pivotally attached to the base section by the pivot mounting for rotation of the pivot section about the pivot mounting so that the pivot section can be folded to a first position against the base section to place the extraction cleaner into a compact configuration, and unfolded to a second, upright position to form the handle assembly for maneuvering the extraction cleaner.

- [c14] A portable surface cleaning apparatus according to claim 13 and further comprising:  
a fluid dispensing system comprising;

a fluid dispenser associated with the base module for applying cleaning fluid to a surface to be cleaned;  
a fluid supply chamber associated with the base module for holding a supply of cleaning fluid; and  
a fluid supply conduit fluidly connected to the fluid supply chamber and to the fluid dispenser for supplying cleaning fluid to the fluid dispenser.

- [c15] A portable surface cleaning apparatus according to claim 14 wherein the recovery container further comprises an air-fluid separator to remove fluids from the working air and deposit the fluids in the recovery container and an outlet opening for exhausting separated air from the recovery container.
- [c16] A portable surface cleaning apparatus according to claim 13 wherein the pivot mounting is a hinge.